THOUGHTS

ON

EDUCATIONAL PSYCHOLOGY

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I.

1. What is meant by educational psychology?

Psychology in general deals with mind and mental phenomena In untechnical speech, soul, spirit, reason, intelligence, are used as synonyms of mind Feeling, intellect, and will are said to be the different forms of activity of mind. Psychology investigates the forms of mental activity and their development or evolution.

The word "development" suggests the phase of psychology which is of chief interest to education. Psychology as a general science is interested in all phases of mental processes and results Education is interested especially in methods of mental development, and in the ideals of perfection that can be attained. Education attempts to change what is into what ought to be; it seeks to realize an ideal It is rather an art than a science, but, of course, there is a science of education, that is to say, a science of the subject-matter, the aims and the methods which belong to the art of education. This science of education has to draw from psychology its most important element—the theory of the method of developing the mind Its ideals are derived from the science of ethics, proximately at least. But ethics itself is founded on psychology. Psychology, in fact, is so fundamental that it conditions, in large measure, all the sciences based on the spiritual nature of man—ethics, theology, politics, sociology, æsthetics, and all forms of philosophy.

Our question involves many considerations; for instance, the question of the relation of psychology to physiology. Physiology is the science of living bodies. Is mind only a function of a living body, or is it an individuality wholly spiritual? Certainly all must admit that there is interaction—that the condition of the body affects the manifestation of feeling, knowing, and willing, being favorable or unfavorable to such manifestation. On the other hand, the operations of feeling, knowing, and willing affect various bodily functions, retarding some and accelerating others. For how many thousand years has mankind known and prized the stimulants and narcotics for their influence on the mind? Alcohol, tobacco, coffee, tea, opium, betel, hashish,—all have been sought for their psychical effects Whether their influence is positive or negative, whether stimulants furnish so called mental force, or whether they simply paralyze or benumb the body so as to relieve the mind of the dis-

traction which a consciousness of its physical organs occasions (especially to acutely nervous persons)—this we see is a crucial question here. But it shall remain a question for the present. "Physiological psychology," as it chooses to call itself, has a great field for investigation. But even if the soul is only a bodily function, it is certain that it cannot make any progress without borrowing *at every step the data derived from psychology by introspection*. For feeling, knowing, and volition are not matters of external observation, but only of internal observation or introspection.

Physiology, like other natural sciences, conducts its investigations by the aid of external observation, mapping out provinces in the world, inventorying their contents, and finally classifying and systematizing facts by relating them to principles. By principles I mean energies acting according to laws: a cause that explains a phenomenon is a principle. But to external observation there is no psychical fact visible. We can behold things occupying space, and events or actions filling time, but we cannot see a feeling with the eye nor hear it with the ear; nor can we taste it, or smell it, or touch it. A feeling can be perceived only by consciousness. So too, the processes of knowing and willing cannot be perceived except by consciousness. The most that physiology can do is to investigate the relations of two orders of observation. It must compare the facts of physiology, the changes of the body, with the facts of mental action in the form of feelings, thoughts, and volitions. Introspection is, therefore, utterly indispensable to physiological psychology.

Here we must note some of the characteristics of introspection.

II.

2. What is introspection?

Introspection is internal observation—our consciousness of the activity of the mind itself. The subject who observes is the object observed. Consciousness is knowing of self. This seems to be the characteristic of mind and mental phenomena—there is always some degree of self-relation; there is self-feeling or self-knowledge. Even in mere life in the vegetative soul, there is self-relation—this we shall study as our chief object of interest in psychology.

We shall note first the contrast between external and internal observation.

Outward observation is objective perception or sense-perception. It perceives things and environments. Things are always relative to their environment. Things are therefore dependent beings. They stand in causal relation to other things and if moved are moved from without by external forces.

Introspection or internal observation, on the other hand, perceives the activity of the mind, and this is self-activity and not a movement caused by external forces. Feelings, thoughts, volitions are phases of self-activity. This we shall consider more in detail. Let us note that a feeling, a thought, or a volition implies subject and object. Each is an activity and an activity of the self. External perception does not perceive any self. It perceives only what is extended in time and space and what is consequently multiple, what is moved by something else and not self-moved. If it beholds living objects it does not behold the self that animates the body, but only the body that is organically formed by the self. But introspection beholds the self.

This is a very important distinction between the two orders of observation, external and internal. The former can perceive only phenomena, the latter can perceive noumena. The former can perceive only what is relative, and dependent on something else; the latter can perceive what is independent and self-determined, a primary cause and source of movement. To pass from the first order of observation which perceives external things, to the second order of observation which perceives self-activity, is to take a great step. (We must consider self-activity in our next section.)

We are dimly conscious of our entire mental activity, but we do not (until we have acquired psychologic skill) distinguish and separately identify its several phases. It is the same in the outer world: we know many things in ordinary consciousness, but only in science do we unite the items of our knowledge systematically so as to make each assist in the explanation of all. Common knowledge lacks unity and system. In the inner world, too, there is common introspection, unsystematized and devoid of unity—the light of our ordinary consciousness. But there is a higher scientific introspection which discovers both unity and system.

The scientific view finds the general or universal. First it discovers classes; next, laws; then causal principles. Science inventories facts, identifying them as falling under classes. Then it goes back of the idea of class and regards the energy that produces a class of facts by continual action according to a fixed form. This fixed form of action it called law. It rises above the idea of law to

the idea of purpose or adaptation to end. That is to say it discovers evolution or progressive development. In the view of evolution there is a goal towards which relatively lower orders are progressing, and the facts, forces, and laws are seen as parts of a great world-process which explains all. At this point science rises into philosophy. Philosophy is science which investigates all facts and phenomena in view of a final or ultimate principle—the first principle of the universe. When science comes to study all objects in view of the principle of evolution it has trancended the stage of mind whose highest object is to discover classes; likewise the stage that makes law an ultimate. Besides efficient cause which makes or produces some new state or condition there is "final cause" or purpose—design or "end and aim." The theory of evolution takes into consideration this idea of the "end and aim" of changes in nature. It ranges or ranks all phenomena according to their development or realization of an ideal. Now it is evident that purpose, design, or "final cause" is an ideal that can have existence for a being (*i. e.* conscious existence) only in so far as it is a soul or mind. A living being like a plant which can grow but not feel, does not perceive or feel its ideal, and yet its ideal guides and directs the activity of its efficient cause or active force. The ideal is only "law" to the plant. But in the lowest form of animal life there is a feeling of want—that is to say the want of an ideal different from its real. We can observe even the lowest animals moving in order to adjust themselves to the environment, or to appropriate the environment for food. As an external phenomenon we should never be able to explain such movements, because we cannot perceive ideals with our external senses. We interpret such movements through our own introspection. We can feel wants and be conscious of motives. We can therefore recognize in a being the existence of introspection in the form of feeling, or in some higher form, only because we exercise the activity of introspection ourselves.

Strange as it may appear, therefore, we conduct even external observation by means of introspection. Natural science in adopting the theory of evolution advances to the stage wherein it makes it its chief object to recognize development from a lower stage towards a higher—the progressive realization of an ideal. The ideal is unconscious in the inorganic world and in the plant world, but acts only as law or as vitality. In the animal world it is conscious of this ideal, and feels it as appetite or represents it in the form of a mental image.

The evolution theory recognizes introspection as existing in the objective world—it sees in nature a tendency to develop such beings as possess internality and energize to realize their ideals. It is curious to note that this movement in science begins by the utter repudiation of what is called teleology; *i. e.*, it sets aside the old doctrine of design which looked for marks of external adaptation of nature to ulterior spiritual uses—such external design as one finds in a watch where the various parts are artificially adapted to produce what they never would have produced naturally. Such external teleology ignored the immanent teleology of nature. By rejecting the old mechanical teleology which makes nature a machine in the hand of God, evolution has come to see the teleology which God has breathed into nature—to see, in short, that nature is through and through teleological. Nature is, in every particle of it, governed by ideals, which, however, are not perceived except by introspection. Matter is heavy, and falls, for example, only because it obeys an ideal—an ideal of which it is entirely unconscious, and yet which is manifested in it in the form of weight. Gravity is the manifestation of the unity of one body with another. The unity is ideal or potential, but its manifestation is real force, real attraction.

This subject of introspection thus leads out to the end of the world and reappears underneath the method of modern natural science which studies all objects in their history—in their evolution. Strangely enough the scientists of the present day decry in psychology what they call the "introspective method." And just as in the case of the repudiation of teleology, they are bound to return to some other form of what they repudiate. Renounce teleology and you find nothing but teleology in everything. Renounce introspection and you are to find introspection the fundamental moving principle of all nature. All things have their explanation in a blind attempt on the part of nature to look at itself.

One more remark: A blind tendency in nature to develope some ideal implies as its logical condition a completely realized ideal in the absolute first principle in which nature is given its being. If nature is evolution—a process moving towards self-consciousness—it is no complete and independent process, but a means used by an absolute Personal Being—God—for the creation of living souls in His own image.

I break off here, in order to commence a new topic which will lead us back again to the question of introspection. Indeed the most important phases of introspection will be found in our inventory of the three stages of thinking in a subsequent article.

III.

3. Self-activity.

A. What is the great central fact to be kept in view in the study of the mind? To this question there is only one answer:—it is self-activity. But the answer is likely to be a sphinx riddle to the beginner. Who has not heard it often repeated that the end and aim of education is to arouse self-activity in the pupil? And yet who means anything by that word? The moment that one calls attention to its true implication he is met by the objection: It is impossible to conceive the origination of activity; it is impossible to frame a concept of what is both subject and object at the same time; self-activity and self-consciousness are inconceivable. "The words exist, it is true, but the mind is unable to realize in thought what is signified by them." Herbert Spencer ("First Principles," page 65 of first edition) says of self-consciousness: "Clearly a true cognition of self-implies a state in which the knowing and known are one, in which the subject and object are identified; and this Mr. Mansell rightly holds to be the annihilation of both."

Just the difficulty found in the conception of self-consciousness is found in that of self-activity. We cannot form a mental picture of self activity, nor of self-consciousness. We cannot picture an activity in which the origin is also the point of return. But this does not surprise us so much when we learn that we cannot form a mental picture of any activity of any kind whatever. We cannot picture even a movement in space although we may picture the two places between which the motion occurs. So, too, becoming and change cannot be pictured in the mind, although we may picture the states of being before and after the transition. We may picture an object as here or there, but not as moving. The ancient skeptics expressed this fact by denying motion altogether. "A thing," said they, "cannot move where it is, because it is there already, and of course it cannot move where it is not; hence it cannot move at all."

The unwary listener who supposes that he is thinking the elements of the problem when he merely exercises his imagination, finds himself drawn into a logical conclusion that contradicts all his experience. To deny motion, in fact, makes experience impossible. Take all motion out of the world and there could be no experience; for experience involves motion in the subject that perceives, or in the object perceived, or in both. And yet we cannot

form a mental picture of motion or change. We picture different states or conditions of an object that is undergoing change; and different positions occupied by a moving thing. But the element of change and motion we do not picture.

Hence it is not surprising that we cannot form for ourselves a mental picture of self-activity, since we are unable to picture in our minds any sort of activity, movement, or change. And yet the thought of motion, change, and activity, is necessary to explain the world of experience,—nay, even to perceive or observe it. So, too, the thought of self-activity is necessary in order to explain motion, change, and activity.

To make this clear, consider the following: (*a*) That which moves, moves either because it is impelled to move by another, or because it impels itself to move. (*b*) In the latter case, that of self-impulsion, we have self-activity at once. (*c*) In the former case, that of impulsion through another, we have self-activity implied as origin of the motion. Either the one which moves it is directly self-active, or else it receives and transmits the energy causing motion (without originating it). (*d*) Were there no originating source of movement it is obvious that there could be no motion to transmit. Suppose, for once, that all things received and transmitted and yet none originated energy. Then all phenomena of movement would be derived, but from no source; all would be effects, but effected by no cause The chain of transmitting links may be infinite in extent, but it is only an infinite effect without a cause. Here we contradict ourselves. If there is no self-active cause from which the energy proceeds, and from which it is received by the infinite transmitting series, then that series does not derive its energy, but originates it and is self-active.

Hence, self-activity must be either within the series or outside it, and in any case self-activity is the essential idea pre-supposed as the logical condition of any thought of motion whatever.

B. I have been obliged to discuss at length this notion of self-activity in order to prepare the road for genuine psychological observation. If the reader denies the existance of self-activity he is unprepared to see or observe it, and psychology does not and cannot exist for him so long as he holds consistently to his denial. He may make some progress in the study of physics, perhaps, but he cannot learn even the physiology of plants or animals without the idea of self-activity. He may study anatomy as the structure of dead bodies, but he cannot study life and organism without recognizing self activity in one of its three forms—assimilation, sensation,

and thought. Of course psychology is impossible to him when he cannot even enter physiology.

Let us dismiss here the reader who can neither see the logical necessity of admitting self-activity as the basis of all motion, and who, on the other hand, will not admit practically the existence of self-active beings side by side with beings that derive all of their changes from outside. Dismissing those skeptics who deny the possibility of psychology of any kind (physiological psychology or otherwise), let us address ourselves to willing students of the phenomena of life, sensation, locomotion, and thought, and all phases of self-activity.

What phenomena are attributed to self-activity? In the first place we recognize it in plants. All human observation, whether of civilized or of savage peoples, takes note of self-activity in the phenomena of vegetation.

The plant grows, puts out new buds, leaves, branches, blossoms, fruit; adds layers to its thickness, extends its roots. It does this by its own activity, and its growth is not the effect of some outside being, although outside conditions must be favorable or else the energy of the plant is not able to overcome the obstacle.

The plant must grow by adding to itself matter that it takes up from its environment—water, salts, carbon, etc. Notice that the plant-energy attacks its surroundings of air, moisture, and earth, and appropriates to itself its environment, after transforming it. One may admit that the environment acts on the plant, but he must contend for the essential fact that the plant reacts on its environment, originating motion itself, and meeting and modifying external influences. The plant builds its structure according to an ideal model; not a conscious model, of course. Its shape and size, its roots and branches, its leaves and flowers, and fruit resemble the ideal (model or type) of its kind or species, and not the ideal of some other species. The self-activity of the plant is manifested in action upon its environment, which results in building up its own individuality. It not only acts, but acts for itself; it is self-related.

Again, notice that the plant acts destructively on other things, and strips off the individuality that transforms their substance into its own tissue, making it into vegetable cells.

The self-activity of the plant is then a formative power that can conquer other forms and impose its own form upon them.

In the next place, consider the kind of energy that we call the self-activity in animals. The individual animal is also a formative

energy, destroying other forms, eating up plants, for example, and consuming the oxygen of the air, and making over the matter into animal cells.

But the animal shows self-activity in other ways. It not only appropriates and assimilates, but it moves its limbs and feels. In the plant there is movement of circulation and growth, and this is also found in the animal. But locomotion is a new feature of self-activity, It enables the animal to change his environment. The animal can use some part of itself as an instrument for providing food, or as a lever by which to move its whole body.

Self-activity is manifested in locomotion, and especially in its conformity to design or purpose. The animal moves in order to realize a purpose. With purpose or design, we have reached internality.

Purpose or design implies a distinction between what is and what is not. The lowest and blindest feeling that exists deals with this discrimination. Pleasure and pain, comfort and discomfort, appetite and aversion, all imply discrimination between one's organism and the environment, as well as between the organism as it is, and the organism as it should be. There is in all feeling a discrimination of limit and a passing beyond limit This transcending of the limit to the organism by the self-activity constitutes sensibility. However obscure this may appear to the novice, it will grow clear and clearer upon further study. The following remarks may summarize what will be given in fuller treatment hereafter.

Feeling is an activity; it is a self-activity; it is like assimilation or digestion, a reaction against an environment. The environment negates or limits the organism; feeling perceives the limitation, or discriminates itself as organism from its not-self as environment. Feeling, therefore, transcends its organism, and unites two factors—organic self and environment. The self moves in order to relieve itself of the pain or discomfort attending this negative action of the environment. Hunger and cold, all varieties of appetite, and desire, have this elemental discrimination between organism and environment, and a further discrimination between the being of the self and the non-being of the self, so that something not yet existent (some ideal state) is discriminated. This discrimination of the ideal is the essential element in desire and sensation, as well as in all higher forms of self-activity, say of thought and will.

It is important to recognize the existence of discrimination in this lowest stage of blind feeling—the most rudimentary animal soul. Feeling, in the act of discriminating between the existing self and its possible self, is constructive ideally, for it repeats to itself

its limitation. The limit to its organism exists, and it is in interaction with its environment. But the self-activity in this higher phase of feeling (higher than the vegetative function of digestion) constructs ideally the limit of the organism and changes the limit for other possible limits, comparing it therewith. This comparison of one limit with other possible ones is the element of discrimination in feeling.

Sensation is an ideal reproduction of the actual limit to the organism. It involves also the simultaneous production of other possible limitations, and hence contains a reference to itself, a feeling of self in its total capacity. On a background, so to speak, of the general possibility of feeling is marked off this particular limit which reproduces or represents the existent. The contrast between it and the general potentiality of feeling is the birth of purpose or design, and (glancing upward) of all the ideals that arise in the human soul, moral, æsthetic, and religious.

Self-activity as assimilation or digestion (vegetative soul), as feeling and locomotion (animal soul), and as thinking (human soul) is to be studied as the fundamental unity of psychology and physiology.

It is not in itself an object of external observation, although external observation offers us phenomena that we explain by assuming self-activity as the individuality which causes them. Self-activity itself we perceive in ourselves by introspection. When we look within we become aware of free energy which acts as subject and object under the forms of feeling, thought, and volition. Becoming acquainted with the characteristic of these activities within ourselves, we learn to recognize their manifestations in the external world.

In our next, we shall discuss self-activity as thought, and discriminate its three essential stages.

IV.

4. The three stages of thought.

The most important discovery I have ever made for myself in the world of thought is this one of the three ascending steps or grades which any one may take with due study and meditation.

I think that all who have seen the third stage of thinking will echo my opinion of its importance. It makes an epoch in ones history.

I think that I first heard of these three stages in my twentieth year. I certainly could not define them satisfactorily until many years afterwards, though I studied Coleridge ("Aids to Reflection" and "The Friend") and many other writers, who named the distinctions and described them more or less vaguely. I always sought for some examples or specimens of the different grades of knowledge in order that I might learn to discriminate them for myself. But my efforts were long in vain.

The "Reason" was described in these writings as something elevated above the "Understanding;" "Sense-perception" named the the lowest stage of intellect; "Understanding," the second from below; "Reason" the highest. I read that reason furnished principles, while the understanding merely perceived relations between objects. Again, I read that the reason drew logical inferences and used the syllogism, while the understanding performed the function of the logical judgment, subsuming objects under general predicates.

Here was no useful classification, at least for me. It did not throw light on any subject. All people seemed to employ judgments and syllogisms whether in shallow thinking or in deep thinking. But I sought for a definition of the deeper grade of thinking that would discriminate it from the shallower grade. Such a definition I believe that I found eventually; and subsequently I recognized many descriptions of it in Plato.

I will endeavor to set forth here, briefly, the prominent features of the three grades of thought, hoping that those who have before noted them will be able to recognize the essential characteristics in my description.

(*a*) The lowest stage of thinking supposes that its objects are all independent one of another. Each thing is self-existent, and a "solid reality." To be sure it thinks relations between things, but it places no special value on relations. Things exist apart from relations and relations are for the most part the arbitrary product of thought or reflection. Things, it is true, are composite and devisible into smaller things, and smaller things are divisible again. All things are composed of smallest things or atoms.

This lowest stage of thinking, it appears, explains all by the two categories of "thing" and "composition." All differences accordingly arise through combination or composition. But since differences include all that needs explanation, it follows that this stage of thinking deceives itself in supposing that *things* are the essential elements in its view of the world and that *relations* are the unessential.

A little development of the power of thought produces for us the consciousness that some *relations*, at least, are the essential elements of our experience.

(*b*) That first stage of thinking, nearest allied to sense-perception, supposes that *things* are the essential elements of all being. The second stage which we may call the *understanding* knows better what is essential; it regards *relations* as essential. By relations, it does not mean arbitrary comparisons or the result of idle reflections. It has made the discovery of truly essential relations. It deals with the category of relativity, in short, and goes so far as to affirm that if a grain of sand were to be destroyed, all beings in space would be changed more or less. Each thing is relative to every other, and there is reciprocal or mutual dependence.

Isaac Newton's thought of universal gravitation deserves all the fame it has got, because it sets up in modern thinking this category of relativity, and all thinking in our day is being gradually trained into its use by the application constantly made of it. Isaac Newton is a perpetual schoolmaster to the race.

Herbert Spencer owes his reputation to his faithful adherence to the thought of relativity in his expositions. Our knowledge is all relative, says he (with the exception of that very important knowledge—the knowledge of the principle of relativity itself—we add, *sotto voce*), and things, too, are all relative, he continues. Essential relativity means dependence. A is dependent on B so that the being of B is also the being of A. Such is the law of relativity. Moreover it refuses to think an ultimate principle as origin of all. It says: A depends on B; B, again, on C; C on D; and so on, in infinite progression.

Relativity, as a supreme principle, is pantheistic. It makes all being dependent on something beyond it. Hence it denies ultimate individuality. All individuality is a transient result of some underlying abstract principle, a "persistent force," for example. Individual things are the transient products (static equilibria) of forces. Forces again are modes of manifestaiion of some persistent energy into which they all vanish.

This second stage of thinking attains its most perfect form in the doctrine of the correlation of forces, and is the ancient scepticism of Pyrrho, and Sextus Empiricus. It underlies, too, the Buddhist religion and all pantheistic theories of the world. Nothing is so common among men of science in our day as theories based on absolute relativity. It is often set up by those who still hold the non-relational theory of the lower plane of thought,

though if held with logical strictness it is incompatible with the preceding stage.

The first stage explains by the category of things, or independent non-relational beings, while the second stage explains by the category of *force* or essential relation. Take notice that force does not need a nucleus of things as a basis of efficacy; for things are themselves only systems of forces held in equilibria by force.

(*c*) Relativity presupposes self-relation. Self-relation is the category of the reason just as relativity is the category of the understanding; or non-relativity the category of sense-perception. Dependence implies transference of energy—else how could energy be borrowed? That which originates energy is independent being. Reflection discovers relativity or dependence, and hence, unites beings into systems. Deepest reflection discovers total systems and the self-determining principles which originate systems of dependent being. The reason looks for complete, independent, or total beings. Hence the reason finds the self-active or its results everywhere.

Sense-perception is atheistic;—it finds each thing sufficient for itself, that is to say, self-existent. The understanding is pantheistic; it finds everything finite and relative and dependent on an absolute that transcends all qualities and attributes—"un unknown and unknowable" "persistent force," which is the negative of all particular forces. The reason is theistic because it finds self-activity or self-determination, and identifies therewith mind. *Mind* is self-activity in a perfect form, while *life* is the same in a less developed stage. Every whole is an independent being and hence self-determined or self-active. If not self-determined it has no determinations (qualities, marks, or attributes) and is pure nothing; or, having determinations, it must originate them itself or else receive them from outside itself. But in case it receives its determination from outside it is a dependent being. Reason sees this disjunctive syllogism.

While Buddhism and Brahminism are religions of the understanding, Christianity is essentially a religion of the reason and furnishes a sort of universal education for the mind in habits of thinking according to reason. It teaches by authority the view of-the-world that reason thinks.

(*d*) It has appeared that each of the three stages of thinking is a view-of-the-world, and that it is not a theory of things worn for ornament—so to speak—or only on holidays—but a silent pre-supposition that tinges all one's thinking.

A person may wear his religion on Sabbath-days and put it off on week days, possibly. But his view-of-the-world shows itself in all that he does.

All things take on a different appearance when viewed by the light of the reason. For reason is insight; it sees all things in God as Malebranche expressed it. For it looks at each thing to discover in it the purpose of the whole universe. To see the whole in the part is justly esteemed characteristic of divine intelligence.

The oft-asserted ability of great men of science—that of Cuvier to see the whole animal in a single bone of its skeleton—that of Lyell to read the history of the glacial period in a pebble—that of Agassiz to recognize the whole fish by one of its scales—that of Asa Gray to see all botany in a single plant;—these are indications of the arrival at the third stage of knowing on the part of scientific men within their departments. Gœthe's "Homunculus" in the *second part of Faust*, symbolizes this power of insight which within a limited sphere (its bottle!) is able to recognize the whole in each fragment.

The spirit or specialization in our time aims to exhaust one by one the provinces of investigation with a view to acquire this power to see totalities. Plato described this third stage of thinking as a power of knowing-by-wholes (totalities).

Learn to comprehend each thing in its entire history. This is the maxim of science guided by the reason. Always bear in mind that self-activity is the ultimate reality—all dependent being is a fragment, the totality is self-active. The things of the world all have their explanation in the manifestation of self-activity in its development. All is for the development of individuality and ultimate free union of souls in the kingdom of God.

To sum up: the lowest thinking activity inventories things but neglects relations; the middle stage of thinking inventories relations, forces, and processes, and sees things in their essences, but neglects self-relation or totality; the highest stage of thinking knows that all independent being has the form of life or mind, and that the absolute is a person, and it studies all things to discern traces of the creative energy which is the form of the totality.

The theory of evolution rightly comprehended as the movement of all things in time and space towards the development of individuality—that is to say, towards a more perfect manifestation or reflection of the Creator, who is above time and space—this theory is (properly understood) the theory of the reason. The theory of gravitation, as a world-view, on the other hand, is that of the understanding.

V.

5. A Conception is not a Mental Picture.

Perceptions relate to individual objects; conceptions relate to general classes or to abstractions—such is the current doctrine of psychology. As the mental acts of perceiving and conceiving form the most important topics of psychology we must make several studies upon them. I think that it is profitable to discuss the differences between mental images or pictures and conceptions before entering upon the question of the origin of general notions. The processes of abstraction and classification may be considered hereafter. Let us now take up the inquiry: What constitutes a general notion or conception? To this we may reply that it is not a mental image, but a definition. The general notion *tree* should include all trees of whatever description, and it is expressed by a definition. But no sooner do I attempt to conceive the notion tree than I form a mental image. The image, however, is not general enough to suit the notion. I imagine a particular specimen of a tree,—an oak, for example. If I imagine it vividly, it is an individual just as much as the oak that I may see before me in the forest. My conception of tree in general recognizes the inadequacy of the image, and dismisses it or permits it to be replaced by another image which presents a different specimen. Perhaps we have never noticed this relation of images to the conception. We are conscious of only a few phases of our mental activity until we have cultivated our powers of introspection. Notice carefully the art of realizing any general conception (or "concept," if one wishes technically to distinguish the product from the process itself). We shall discover that our definition is a sort of rule for the formation of images, rather than an image. What conception do we form of bird? We think of a flying animal—of feathers, wings, bills, claws, and various appurtenances which we unite in the idea of bird. We call up images and dismiss them as we go over the elements of our definition, for we recognize the images to be too special or particular to correspond to the conception. In the rudest and least developed intellects, whether of savages or children, the same process is repeated. Is this a bird? Yes; it has a bill, claws, feathers, wings, etc. But it does not have either of these in general. Its bill is a particular specimen of bill, having one of the many shapes, or colors, or magnitudes possible to a bill. So, too, of its feathers, wings, claws, etc. The image of our bird was not of a bird in general, but of a hawk, or duck, a hen, or pigeon, or of some other species of birds. Nor

was the image that of a hawk, or a duck, etc., *in general*, but of a particular variety; and not even of a variety in general, but finally of a posssble or remembered individual specimen of a variety. So, too, the features of the bird are only individual specimens or examples that fall under the general conceptions of claws, feathers, bills, wings, etc.

The definition which we have formed for ourselves serves as a rule by which we form an image that will illustrate it. This difference between the conception and the specimen is known to the child and the savage, though it is not consciously reflected upon.

Take up a different class of conceptions. Take the abstractions of color, taste, smell, sound, or touch; for example—redness, sourness, fragrance, loudness, hardness, etc. Our conception includes infinite degrees of possible intensity, while our image or recalled experience is of some definite degree and does not correspond to the general notion.

We have considered objects and classes of objects that admit of images as illustrations. These images, if vague, seem to approximate conceptions; if vivid, to depart from them. But no image can be so vague as to correspond to any conception. Let us take more general notions, such as force, matter, quality, being. For force, image, if one can, some action of gravitation or of heat. If some image or experience can be called up it is felt to be a special example that covers only a very small part of the province of force in general. But an image, strictly considered, cannot be made of force at all nor of any special example of force. We can image some object that is acted upon by force—we can image it before it is acted upon and after it is acted upon. That is to say, we can image the results of the force, but not the force itself. We can think of force, but not image it.

If we conceive existence, and image some existent thing; if we conceive quantity in general and image a series of things that can be numbered, or an extension or degree that may be measured; if we conceive relation in general and try to illustrate it by imaging particular objects between which there is a relation—in all these and similar cases we can hardly help being conscious of the vast differences between the image and the conception. In realizing the conception of relation, as in that of force or energy, we do not image even an example or specimen of a relation or force, but we image only the conditions or termini of a specimen relation; but the relation itself must be thought, just as any force must be thought, but cannot be imaged. We can think relations but not image them.

Just here we notice that we have a lurking conviction that these general ideas or conceptions are not so valid and true to reality as our images are or as our immediate perceptions are. Conceptions we should think, are vague and faint impressions of sensation. "Ideas are the faint images of sense-impressions" said Hume.

Nominalism says that there is nothing in reality corresponding to our general conceptions, and that such conceptions are mere devices of ours for convenience in knowing and reasoning. If so, our images are truer than our conceptions. Herbert Spencer says (in his "First Principles") that our conceptions are mere symbols of objects too great or too multitudinous to be mentally represented.

If the views of Hume and Herbert Spencer are true in regard to our general notions, psychology would have a very different lesson in it—very different from that which we propose to find. To us the images are far less true than our conceptions. The images stand for fleeting or evanescent forms while the conceptions state the eternal and abiding laws, the causal energies that constitute the essence of all phenomena.

When we are contemplating the world as a congeries of things (recall the "lowest stage of thinking" described in our previous article) we seem to be convinced that all true reality has the form of things. But when we begin to reflect on what our experience teaches, we see that all things are the results of forces, and that they (the things) are in a process of change into other things. The underlying reality then is force, and even Herbert Spencer assures us that the ultimate reality is a persistent force—persistent under all the special forces. These forces form and transform things. Now force or energy is more real than the fleeting things in which it manifests itself, and the persistent force is more substantial still.

Here we find ourselves arrived at another conviction than nominalism. We see that general conceptions correspond more nearly to the deeper realities (the formative and destructive forces) which manifest themselves in the process of the world. In fact psychology ought to recognize that the mental process of forming general conceptions is the process of discovering the real process in which things are found by our experience. We find the history of things —we trace them from one shape to another, and we name the process and define it. Hence arise our general notions. The oak and the acorn are two things to perception. But experience discovers that there is an individual energy which manifests itself as acorn,

and then as sapling, and again as oak bearing a crop of acorns. From acorn to acorn again there is a process. Our word oak signifies this general conception which corresponds to the deeper reality of energy which reveals itself in the whole process.

This leads us from the question of mental images to the question of the reality which we learn to know through experience. We learn to estimate at their proper value things and dead results, and to look beyond them to the energies that cause them to be and to change. In the changes we see revealed the generic causes and the laws or forms of manifestation. We learn in the order of the growth of an oak or of a human being what is the energy that is there incarnated and what is the law of the inner essential form.

In our next chapter we shall take up examples of ideas or conceptions that cannot be generalized from experience, and yet which are ideas of such importance as to make experience impossible without them. We refer to the ideas of Space, Time, and Causality.

VI.

6. Time, Space, and Causality—Three Ideas that make Experience possible.

A conception is not a mental picture but a sort of rule or definition for the formation of mental pictures. The mental pictures thus formed are only illustrations. The mental picture called up by the word *oak* is an illustration but does not exhaust the idea of oak. The idea of oak includes an infinite number of possible examples, illustrations, or specimens, all differing one from another.

Inasmuch as all particular specimens of the oak have grown to be what they are (or what they were) by the action of an oak-producing energy, the idea or conscious conception that we form of oak corresponds not to the individual but to the energy which produces the individual. Moreover, as the energy that brings the individual example of an oak into being—causing it to sprout and become a sapling, grow to maturity and bear its crop of acorns, continually appropriating from its environment air, moisture, salts, and other material that it needs, and converting them into vegetable cells—this energy is a more potent reality than its effect, the individual oak. It is the generic process, in fact, and does not stop with one oak, nor a forest of oaks. Our general idea of oaks cor-

responds to this generic energy, and hence has a deeper reality corresponding to it than the mere individual oak or oaks are that we see by the aid of our senses. Sense-perception does not, in fact, amount to much until it is aided by the formation of concepts or general ideas.

Previous to the formation of general ideas, sense-perceptlon is merely the ceaseless flow of individual impressions without observed connection with one another. In fact we do not perceive at all, strictly speaking, until we bring general ideas to the aid of our sense-impressions. For we do not perceive *things* except by combining our different sense-impressions—that is to say, by uniting them by means of the ideas of Time, Space, and Causality.

These three ideas are not derived from experience—in other words, they are not externally perceived as objects, or learned by contact with them as individual examples. We know that this is so by considering their nature, and especially by noting that they are necessary as conditions for each and every act of experience. We do not mean, of course, that we must be conscious of these ideas of time, space, and causality before any act of experience; nor would we deny that we became conscious of those ideas by analyzing experience—what we deny is that they were furnished by sense-impressions; what we affirm is that they were furnished by the mind in its unconscious act of appropriating the sense-impressions and converting them into perception. The mind's self-activity is the source of such ideas.

We find these ideas *in* experience, but as furnished by the self-activity of the mind itself, and not as derived from sense-impressions. We may each and all convince ourselves of the impossibility of deriving these ideas from sense-impressions by giving attention to the peculiar nature of these ideas. We shall see, in fact, that no act of experience can be completed without these ideas. Immanuel Kant called them "forms of the mind"—they may be said to belong to the constitution of the mind itself because it uses these ideas in the first act of experience, and in all acts of experience.

Why could not these ideas be furnished by experience like ideas of trees and animals, of earth and sky? The answer is: Because the ideas of time and space involve infinitude, and the idea of causality involves absoluteness; and neither of these ideas could by any possibility be received through the senses. And it is not correct to say that we derive even ideas of trees and animals, earth and sky, from sense-impressions, because sense-impressions cannnot become ideas

until they are brought under the form of time, space, and causality. Before this they are merely sensations; after this they are ideas of possible or real objects existing in the world.

Let the psychologist who believes that all ideas are derived from sense-impressions explain how we could receive by such means the idea of what is infinite and absolute. Is not any sense-perception limited to what is here and now? How can we perceive by the senses what is everywhere and eternal?

The materialists will answer, perhaps: "We cannot, it is true, perceive what is infinite and eternal by means of the senses; nor can we conceive or think such ideas by any means whatever. In fact, we do not have such ideas. Time and space and causality do not imply conceptions of infinitude or absoluteness. All supposed conceptions of the infinite and absolute are merely negative ideas, which express our incapacity to conceive the infinite rather than our positive comprehension of it."

The issue being fairly presented we may test the matter for ourselves. Do we think space to be infinite, or simply as indefinite? Do we not think space as having a nature that it can only be limited by itself? In other words would not any limited space or spaces imply space beyond them and thus be *continued* rather than limited? Let any one try this thought and see if he does not find it necessary to think space as infinite, for the very reason that all spatial limitation implies space beyond the limit. Space as such cannot be limited—the limitation must belong always to that which is *within* space. An attempt to conceive space itself as limited results in thinking the limited space as within a larger space. Space is of such a nature that it can only be thought as self-continuous, for its very limitations continue it. A limited portion of space is bounded only by another space. The limited portion of space is continuous with its environment of space.

This is a positive idea and not a negative one. The idea would be a negative idea if our thinking of it could not transcend the limit —that is to say if we could not think space beyond the limit. But as our thought of space is not thus conditioned (we are, in fact, obliged to think a continuous space under all spatial limitations) space is a positive or affirmative idea. We see that the mind thinks a positive infinite space under any idea of a thing extended in space.

Let us state this in another way: We perceive or think things as having environments—each thing as being related to something else or to other things surrounding it. This is the thought of rela-

tivity. But we think both things and environments as contained in pure space—and pure space is not limited or finite, because all limitation implies space beyond.

The difficulty in this psychological question arises through a confusion of imagination with conception or thinking. While we conceive infinite space positively, and are unable to think space otherwise than infinite or self-continued—yet, on the other hand, we cannot image, or envisage, or form a mental picture of infinite space. This inability to imagine infinite space has been supposed by Sir William Hamilton (see his Lectures on Metaphysics, page 527 of the American edition) to contradict our thought of infinite space. His doctrine was adopted by Mansell and Lewes, and also by Herbert Spencer, who made it the foundation thought of his "Unknowable" (First Principles, Part I., Chap. 1).

Now, a little reflection (and introspection) will convince us that this incapacity of imagination to picture infinite space is not a proof that we cannot conceive or think that idea, but the contrary: Our incapacity to image infinite space is another proof of the infinitude of space!

When we form a mental picture of space, why do we know that that picture does not represent all space? Simply because we are conscious that our thought of the mental picture finds boundaries to that picture, and that these boundaries imply space beyond them; hence the limited picture (and all images and pictures must be limited) includes a portion of space, but not all of space. Thus it is our thought of space as infinite, or self-continued, that makes us conscious of the inadequacy of the mental picture. If we *could* form a mental picture of all space, then it would follow of necessity that the whole of space is finite. In that case imagination would contradict thinking or conceiving. As it is, however, imagination confirms conception. Thinking says that space is infinite because it is of such a nature that all limitations posit space beyond them and thus only continue space instead of bound it. Imagination tries to picture space as a limited whole, but finds it impossible because all its limitations fall *within* space and do not include space as a bounded whole. Thus both mental operations agree. The one is a negative confirmation of the other. Thinking reason sees positively that space is infinite, while imagination sees that it cannot be imaged as finite.

Time is also infinite. Any beginning presupposes a time previous to it. Posit a beginning to time itself and we merely posit a time previous to time itself. Time can be limited by time only.

The now is limited by time past and by time future; no, it is not correct to say that it is *limited,* for it is *continued* by them. Time did not begin; nor will it end.

But one cannot perceive an event without thinking it under the idea of time. No sensation that man may have had could be construed as a change or event happening in the world except by the idea of time. But it is impossible to derive the idea of time such as we have it from sense-impressions, for any one, or any series of such impressions could not furnish an infinite time nor the idea of a necessary condition.

Nor could the experience of any limited extension give us the idea of infinite space, or of the necessity of space as a condition of that experience.

To the reader who begins to think that this decussion is lead-into metaphysics as well as psychology, I would make this suggestion: Undoubtedly psychology does underlie the question of metaphysics. It relates to the theory of knowledge in its most general form, and concerns, too, all concrete theories of the world, as well as the abstract questions of knowledge. In fact the attitude of modern science against philosophy—the attitude of positivism against metaphysics—the attitude of mysticism and "theosophy" against Christianity—in short, all agnosticism and pantheism branches out at the point treat in this chapter. Most of it starts professedly from Sir William Hamilton's supposed proof that the idea of the infinite is merely a negative idea—an incapacity instead of a real insight. From the psychological doctrine of the negativity of our ideas of the infinite and absolute (first applied by Hamilton in his famous critique of Cousin) it is easy to establish the world-view of pantheism and to deny the doctrine of the personality of God.

Who will say that psychology is not important for the teacher? Upon it depends the spirit of his instruction whether he gives a pantheistical or a theistical implication to the science and literature that he teaches. Psychology, as a mere classification of so-called faculties, or as a mechanical theory of sense-perception, conception, imagination, will, and emotions, is undoubtedly of little worth; but as revealing to us the foundations of ultimate principles in our view of the world it is of decidedly great importance!

It is true that the psychology offered to teachers is a mere classification of the activities of the mind. But in order that psychology shall be more than a classification, namely, an investigation of the essential forms of mind itself, it is exceedingly important that

its ideas shall be studied before they are classified. Without study it is easy to pass off a spurious theory of ideas—a theory, for example, that all ideas are derived from sense-impressions. On such a theory agnosticism may sit securely and deny God, Freedom, and Immortality.

In our next we shall investigate the idea of causality and its absoluteness.